

Using the 7-segments Display

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L.A.P. 1 Course

The 7-segments Display

- The Nucleo64 add-on board has a **four digit 7-segments display**
- The display can be used to show both **number and letters** (those that can be displayed, e.g. the “**m**” cannot be)
- Digits are numbered **0 to 3**, from **left to right**
- The `stm32_unict_lib` provides functions to directly access the display
- They use TIM5, so this timer is not available when the display is enabled

Display Control Functions

- Display initialization

```
void DISPLAY_init(void)
```

- Write a character “c” in digit “d”

```
void DISPLAY_putc(int d, char c)
```

- Write a string “s” from digit “d”

```
void DISPLAY_puts(int digit, char * s)
```

- Turn on or off the decimal point of digit “d”

```
void DISPLAY_dp(int digit, int on_off)
```

Example: tenth-seconds counter

```
#include "stm32_unict_lib.h"
#include <stdio.h>

int counter = 0;

int main()
{
    // Init the display
    DISPLAY_init();

    // init the timer 2 and configure the timebase
    // tick set to 0.1 ms
    TIM_init(TIM2);
    TIM_config_timebase(TIM2, 8400, 1000);
    TIM_set(TIM2, 0);
    TIM_on(TIM2);
    TIM_enable_irq(TIM2, IRQ_UPDATE);

    for (;;) {
        char s[5];
        sprintf(s,"%4d", counter); // put counter value to string
        DISPLAY_puts(0, s); // update the display
    }
}

void TIM2_IRQHandler(void)
{
    ++counter;
    TIM_update_clear(TIM2);
}
```

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